

## **Historic, Archive Document**

Do not assume content reflects current  
scientific knowledge, policies, or practices.





32A

CURRENT LITERATURE  
IN

AGRICULTURAL ENGINEERING

UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF AGRICULTURAL ENGINEERING

LIBRARY  
RECEIVED  
NOV 21 1932  
U. S. Department of Agriculture

Vol. 2, No. 5 *Nov. A*

WASHINGTON, D. C.

November, 1932

Agriculture.

Agriculture. General statistics. Summary for the United States 1929 and 1930. U. S. Bureau of the Census. 1932. 11p.

Air conditioning.

Air conditioning. By William Hull Stangle and Realto E. Cherne. Heating and Ventilating. v. 29, no. 8. August, 1932. p. 49-50. Pt. XXI. conclusion.

Air conditioning and cooling for heating contractors. By Walter L. Fleisher. Heating and Ventilating. v. 29, no. 8. August, 1932. p. 31-35.

Air conditioning develops sturdy greenhouse plants. By R.C. Hinton. Electricity on the Farm. v. 5, no. 11. November, 1932. p. 14-16, 34.

Computing a home's air conditioning needs. By W. D. Jordan. Fuel Oil Journal v. 11, no. 5. November, 1932. p. 24, 26, 66-67.

Conditioning units - a reference list. Heating and Ventilating. v. 29, no. 10. October, 1932. p. 41-66. Summary, p. 67-68.

Conditioning units - What they are and how they work. Heating and Ventilating v. 29, no. 10. October, 1932. p. 34-40. Warm-air group; integral type units; units-to-be-added type; steam or hot water group; permanent direct units; portable units; indirect units.

Construction of a simple psychrometric chart. By A. E. Beals. Heating and Ventilating. v. 29, no. 8. August, 1932. p. 21-24.

How dehumidification brings comfort in a home cooling job. By William W. Stevens. Domestic Engineering. v. 40, no. 4. September, 1932. p. 48-51, 126. Installation considered to show what is being done to make homes comfortable by means of dehumidification with absorbent material and cooling with water taken from lake.

Humidify or dehumidify: A simplified solution. By S. R. Dows. Aerologist. v. 8, no. 11. November, 1932. p. 21-26.

Ice for air conditioning. By Eustace C. Soares. Electrical World. v. 100, no. 18. October 29, 1932. p. 596-597. Best for short-time loads or rapidly fluctuating loads. Advantages: 1. Readily available in all localities; 2. Yields any reasonable refrigerating rate, through varying rate of melting. 3. Melting rate independent of its production rate.



## Air Conditioning. (Cont'd)

Introduction to air conditioning. By John Cushman Fistere. Architectural Forum. v. 57, no. 2. August, 1932. p. 167-174.

Research data and applications of ice to air conditioning. By B.S. Williams. Ice and Refrigeration. v. 83, no. 2. August, 1932. p. 49-53. Development of central cooling system with use of ice to cool water. Factors of importance in determining suitable equipment. Applications for ice cooling.

Unit coolers in refrigeration and air conditioning. By Thomas W. Carraway. Refrigerating Engineering. v. 24, no. 4. October, 1932. p. 225, 240.

## Building construction.

Checking the design of rectangular timber beams. By C. K. Clausen. Engineering News Record. v. 109, no. 16. October 20, 1932. p. 471.

Construction costs: 1932. N.Y., Engineering News-Record, 1932. 99p.

Earthquake-resistant construction - its status today. By Bailey Willis. Engineering News Record. v. 109, no. 18. November 3, 1932. p. 532-533. Unity of construction and rigidity of structure are fundamental to safety. Height limitations as related to rigidity. Place of flexible construction. Editorial, p. 537.

Lessons from hurricanes in Puerto Rico. By Manuel Font. Engineering News Record. v. 109, no. 16. October 20, 1932. p. 470-471. Design changes suggested for structures in hurricane areas. Editorial p. 478.

Standardized buildings: Editorial. Heating and Ventilating. v. 29, no. 8. August, 1932. p. 51. Most plans based on use of factory methods but are still in conversational and experimental stage. No one has yet suggested details of plan which will bring heating plan to site fully erected. Factory fabrication of heating plants already carried on to considerable degree - needs revolutionary idea to create further progress.

## Columbia Basin.

Columbia River has astounding possibilities. Oregon Farmer. v. 55, no. 16. October 20, 1932. p. 2. In river and its tributaries, it has been estimated, is potential horsepower of about 10,000,000. In 10 dams which have been proposed there would be about 3,400,000 horsepower.

## Concrete.

Accelerated absorption tests on concrete. Engineering News Record. v. 109, no. 18. November 3, 1932. p. 521. Test method developed in U.S. Engineer Office, Rock Island, Ill. Uses standard 6 x 12 in. compression test cylinder immersed in specially designed tank filled with waters. After 7-day curing period, cylinders are weighed and oven-dried at temperature of about 240 deg.F. for 24 hours. Cylinders are then weighed, cooled to room temperature, immersed in tank and subjected to pressure of 200 lb. per sq. in. for period of 4 hours. Specimen then removed, weighed again and percentage gain in weight determined.



## Cotton.

Water requirements of cotton on sandy loam soils in southern San Joaquin Valley. By S. H. Beckett and Carroll F. Dunshee. 1932. 48p. California Agricultural Experiment Station Bulletin no. 537. Results of five-year study dealing principally with irrigation requirements of cotton grown on sandy loam soils, and the effects of soil moisture deficiency on growth and yields.

## Dairy equipment.

Use of water bowls in the dairy barn. By C. Y. Cannon, E.N. Hansen and James R. O'Neal. 1932. 114p. Iowa Agricultural Experiment Station Bulletin no. 292.

## Dams.

Beach drainage safeguards. Alexander Dam. By Joel B. Cox. Engineering News Record. v. 109, no. 16. October 20, 1932. p. 466-469. Reconstruction of Hawaiian dam which failed in 1930 during construction completed safely by installing system of drains in downstream beach section. Editorial p.478-479.

Corewall in rockfill dam tilts when reservoir fills. By F. A. Noetzli. Engineering News-Record. v. 109, no. 18. November 3, 1932, p.529-530. Vertical concrete core in Qued Kebir dam of Tunis water-supply system shears and leans with first water load. Repairs made and dam strengthened.

Thin concrete diaphragm protects Ringedal dam. By Chr. F. Groner. Engineering News Record. v. 109, no. 17. October 27, 1932. p. 498-500. Disintegration of stone masonry due to percolation of water checked by construction of watertight diaphragm free of upstream face of dam. Editorial; p.509.

## Electric service, Rural.

Rural extension rules modified in New York. Electrical World. v.100, no. 17. October 22, 1932. p. 551.

Rural service costs. Electrical World. v. 100, no. 17. October 22, 1932. p. 568-569. Refers to article in previous issue, "Analysis of rural line costs".

Simplifying adequate service to the home. By Harry P. Sparkes. Electrical World. v. 100, no. 16. October 15, 1932. p. 538-541.

Strength requirements affect rural line costs. Electrical World. v. 100, no. 16. October 15, 1932, p.526. Pt.2, report of electric technical committee on construction standards and cost of rural distribution lines, Empire State Gas and Electric Association.

## Electric wiring.

What is adequate house wiring? Electrical World. v. 100, no. 18. October 29, 1932. p. 603-605. Eight industry associations answer this question in cooperative standard of outlet location, wiring and switching layouts designed to provide best modern service to home.



## Electricity on the farm.

Application of hydro-electric power to farm work. Hydro-Electric Power Commission of Ontario. Bulletin. v. 19, no. 9. September, 1932. p. 297-302. Article no. 26. Electric grain grinders for use on farms.

Feed grinding with electric motors, 2 hp. and smaller. 1932. 4p. Committee on the Relation of Electricity to Agriculture, Chicago, Illinois.

Feed grinding with electric motors, 3hp. to 7½ hp. 1932. 4p. Committee on the Relation of Electricity to Agriculture, Chicago, Illinois.

Feed grinding with electric motore, 10 hp. and larger. 1932. 4p. Committee on the Relation of Electricity to Agriculture, Chicago, Illinois.

Forage grinding and chopping with electric motors. 1932. 4p. Committee on the Relation of Electricity to Agriculture, Chicago, Illinois.

Motors for muscle on the electrified farm. By J.V. Hunt. Electric Journal. v. 29, no. 11. November, 1932. p.531-532.

Profitable and comparatively unexploited field open for sale of modern electric hen house equipment. Northwest Farm Equipment Journal. v. 46, no. 10. October, 1932. p. 25-27.

Rural electrification. Progress report no. 8. Cooperative studies of application of electricity to agriculture 1932. 73p. Multigraphed. Idaho committee on the relation of electricity to agriculture;

Warming water for poultry. By Charles E. Seitz. Electricity on the Farm. v. 5, no. 11. November, 1932. p. 8-10.

## Erosion control.

Controlling soil blowing. By R. Newton. Montana Farmer. v. 19, no. 24. August 15, 1932. p.3. "strip farming" and other cropping methods prove effective in Alberta.

Effect of the degree of slope on run-off and soil erosion. By F.L. Duley and O.E. Hays, Journal of Agricultural Research. v.45, no.6. September 15, 1932. p.349-360.

Engineer and the control of erosion. By Lewis A. Jones. 1932. 12p. Mimeographed. Delivered before annual meeting of American Society of Agricultural Engineers, Columbus, Ohio. June 23, 1932.

## Farm Buildings.

Inexpensive methods of housing live stock. By A.W. Oldershaw. Journal of the Ministry of Agriculture. v.39, no.6. September, 1932. p. 514-520.

Low-cost shelter is timely problem. By L.J. Smith. Oregon Farmer. v.55, no. 13. September 29, 1932. p.3. Small house to meet present-day economic needs can be built for \$150 cash outlay.



## Farm machinery and equipment.

Fourth annual conference in farm machinery. Implement Record. v. 29, no. 11. November, 1932. p. 21. Tentative program.

Machine-cut sugar. By Dan Scoates. Country Gentleman. v. 102, no. 1. January, 1932. p. 9, 31. Successful planters; harvesting obstacles to overcome; advantages of short lengths; faster and better work.

New hay "combine". Montana Farmer. v. 20, no. 2. September 15, 1932. p. 11. "pick-up" hay baler. Takes from three to four men to handle rig depending upon crop. Machine is pulled along windrow as pick-up gathers in hay and feeds it to baling chamber. Pick-up is built along same principle as that which has been used so successfully on pick-up combines.

Parker's wireless corn planter. Farm Implement News. v. 53, no. 31. October 27, 1932. p. 18. May prove to be answer to four-row or more power planting.

Plow with rotary cutters run by Diesel engine. Popular Mechanics Magazine. v. 58, no. 5. November, 1932. p. 773. Twelve plow bodies are of cast steel with removable forged-steel shares attached by soft iron bolts which shear under excessive strain. Cast-steel rings to which shares are attached rotate in opposite directions at variable rates of speed but constant in ratio with forward speed. Speed of plowshares is always greater than forward speed, thus permitting thorough pulverization. Behind rotary plow, furrower, disk harrow, ditcher or grader can be drawn. Diesel motor is intended to give full-load output without strain and develops 150 horsepower. Fuel is pumped directly into cylinder under pressure sufficient to atomize it at once.

Revised report of farm machine production and sales in 1931. Farm Implement News. v. 53, no. 31. October 27, 1932. p. 19.

## Farms.

Factors relating to income and costs of production on farms in Marshall and DeKalb Counties, Alabama, 1927-1929. By C. G. Garman. 1932. 56p. Alabama. Agricultural Experiment Station. Bulletin no. 236.

Farm planning for increased efficiency and better incomes on Mississippi farms. By T. L. Gaston. 1932. 21p. Mississippi Agricultural Extension Department. Extension bulletin no. 64.

## Fire protection.

Farm water systems and fire control. By E. T. Leavitt. Farm Implement News. v. 53, no. 32. November 10, 1932. p. 22. For less than 20 cents day farmers pump water directly into their houses and barns and in many cases using large quantities for cooling milk, and in addition to convenience and protection to health, their property also had this protection against fire.

Prevention and control of farm fires: Handbook on the causes of fires and best methods of safeguarding against loss of life and property. Chicago, 1932. 167p. Compiled under direction of joint committee authorized and appointed by Agricultural Committee of the National Fire Waste Council of Washington, D.C., and Farm Fire Protection Committee of National Fire Protection Association of Boston, Mass.



## Floors.

Abrasion test for flooring materials. By J.R. Shank. Engineering Experiment Station News. Ohio State University. v. 4, no. 3. October, 1932. p.6-7.

Preventing cracks in new wood floors. By L.V. Teesdale. American Builder. v. 53, no. 4. July, 1932. p. 31.

Wood floor design for masonry wall buildings. By Norman B.Green. Engineering News Record. v. 109, no. 17. October 27, 1932. p. 491-492. Double-diagonal sheathing best for shear resistance. Tests show that wall anchors need not be large but should be closely spaced.

## Flow of water and gases.

Solution of special problems in pipe flow by graphical analysis. By Grant K. Palsgrove. 1932. 29p. Rensselaer Polytechnic Institute Bulletin. Engineering and Science Series no. 37.

## Forage drying.

Artificial curing of hay. By Harold T. Barr. Southern Agriculturist. v.62, no. 10. October, 1932. p.6.

Comparison of the nutritional values of artificially cured hay meals with sun cured hay meals. 1932. 6p. Ralston Purina Company. Research laboratories, St. Louis, Missouri.

Drying of legume hay plants. By Floyd Linville Higgins. 1932. 42p. Minnesota Agricultural Experiment Station. Technical bulletin no. 83. Study to determine role of leaves in drying stems and relation of method of drying to loss of leaves and chemical composition.

Effect of artificial drying on the availability of the nutrients of alfalfa hay. By E. B. Hart, O. L. Kline and G. C. Humphrey. Journal of Agricultural Research. v. 45, no. 8. October 15, 1932. p. 507-511.

Haymaking without sunshine. By R. Borlase Matthews. Rural Electrification and Electro-Farming. v. 7, no. 89. October, 1932. p. 146-148, 150-151. Review of various processes at home and abroad.

## Frost protection.

Orchard heating. By Jack Klein. California Cultivator. v. 79, no. 13. September 24, 1932. p. 195, 202.

## Fuels.

Government says 140 gal. equal ton. Fuel Oil Journal. v. 11, no. 5. November, 1932. p. 77-78. 140 gallons of oil equal ton of soft coal, 130 gallons equal ton of hard coal.

## Heating.

Fuel economy in domestic automatic heating. By Howard H. Langdon and Homer J. Dana. 1932. 46p. Washington Engineering Experiment Station. Engineering bulletin no. 39.



## Heating. (Cont'd)

Heating in residences and small structures. By Harold L. Alt. Domestic Engineering. v. 40, no. 4. September, 1932. p. 68, 71, 75-76, 79-80. Tells what vacuum systems are; arrangement of typical up-feed vacuum system; how to cross doorways with return main; how to size supply and return piping and other items necessary to complete understanding of subject.

Hook-ups. Heating and Ventilating. v. 29, no. 10. October, 1932. p. 27-32. Old and new warm-air plants. Radiator heat and air conditioning.

Plant cultivation with the aid of electric light. By Messrs. Odgen G. Kohler and G. Nilsson. Rural Electrification and Electro-Farming. v. 8, no. 85. June, 1932. p. 24-26. Abstract of report of investigations carried out in Sweden.

## Hotbeds.

Cleaner, more dependable method of hotbed heating. By R.R. Parks. Electricity on the Farm. v. 5, no. 11. November, 1932. p. 17-19. Operating costs given.

Electric heat quickens plant growth. By B. W. Faber. Electric Journal. v. 29, no. 11. November, 1932. p. 508-509. Case described cost per 100 plants was about 10 cents, including building, equipment, current and labor.

Electric soil and hotbed heating. By Hobart Beresford. 1932. 26p. Idaho. Agricultural Experiment Station. Circular no. 68.

Electrified plant growing. By George W. Kable. Country Gentleman. v. 102, no. 3. March, 1932. p. 16-17, 67. Some notable advantages reported for new current-warmed hotbeds.

Energy use varies widely for electric soil heating. Electrical World. v. 100, no. 18. October 29, 1932. p. 585. Based upon study of electric hotbed installations in territory of Buffalo, Niagara and Eastern Power Corporation. Variations in energy use between 0.07 and 0.43 kw.-hr. per 100 sq.ft. per hour appear to be about what may be expected in such work.

## Houses.

Construction details that guarantee better houses. By Scarff W. Downing. American Builder. v. 53, no. 4. July, 1932. p. 22-23.

Home, sweet home of tomorrow. By C. W. Farrier. Popular Mechanics Magazine. v. 58, no. 3. September, 1932. p. 353-354, 138A. Will cost about half as much as similar home built of materials now in use. Intended to last only 15 or 20 years. Its frame will be of rustless metal, its walls - three inches thick - of enameled metal, its floors of sheet metal and it will be covered by metal roof. Virtually windowless, artificial light being furnished by ultraviolet tubing.

House built like a dish. Popular Mechanics Magazine. v. 58, no. 5. November, 1932. p. 689-691. Framework of house is of structural steel, erected on standard type of foundation. To steel frame, wood nailer strips are attached by bolts, and to these, layer of insulating material is nailed. This layer consists of inch-thick sheet of sugarcane fiber sandwiched between



## Houses, (Cont'd)

steel plates. Floors are laid on steel joists, supported by steel beams and incorporating wood nailer strip along top edges. Windows are of steel-case-ment type set in sheet-metal frames which are fastened directly to structural steel studs. Outside walls and roof are covered with porcelain steel shingles. Asbestos-wool insulation is used between wall surfaces.

New type of house: Frameless steel house. By Bernard J. Newman, Housing. v. 21, no. 3. October, 1932. p. 197-206. Walls, floors, erection, exterior and interior finish, welding,

Planning the house: Checklist of requirements. By Frederic Arden Pawley, Architectural Record. v. 72, no. 5, November, 1932. p. 283-294.

Pre-fabricated lumber new idea for housing. By Theodore Knappen, American Builder, v. 53, no. 6. September, 1932. p. 26-27. House "built in a day" demonstrates cost cutting possibilities of new method.

Problem of the pre-fabricated house. By George A. Bole. Clay Worker. v. 98, no. 4, October, 1932. p. 136-137.

## Houses, Remodeling.

Remodeling the house to enlarge its usefulness, modernize its equipment and increase its value as an investment. Architectural Record. v. 72, no. 5. November, 1932. p. 295-296.

## Hydraulics.

Straight line treatment of hydraulic duration curves. By Roy Monte Harris. 1932. 42p. Washington Engineering Experiment Station Bulletin no. 65.

Studies in agitation: Suspension of sand in water. By A. McLaren White, S.D. Sumerford, E. O. Bryant and B.E. Lukens. Industrial and Engineering Chemistry. v. 24, no. 10. October, 1932. p. 1160-1162. Sand concentration does not indicate stream flow of liquid, although it is probably practical measure of its velocity.

Toward a theory of the morphologic significance of turbulence in the flow of water in streams. By John B. Leighly. Berkeley, 1932. 22p. University of California. Publications in Geography. v. 6, no. 1.

## Insect control.

Light trap with suction fan. By W. B. Herms. Agricultural Engineering. v. 13, no. 11, November, 1932. p. 292. Consists essentially of: 1. 100 to 300 w. lamp, 2, tin or sheet iron sleeve from 12 to 15 in. in diameter and 18 and 24 in. long, held in place by three 1/4 in. rods suspended from reflector top, 3, small ventilating fan with motor fastened inside sleeve, 4, bag of black muslin 3 ft. deep, 5, windshield with vane,

## Insulation.

House insulation --- A depression proof investment. By H. W. Paul, Building Material Digest, October 1932, p. 11, 20. Table gives results of different methods of applying insulation to reduce radiation and cut down amount of fuel used,



## Insulation. (Cont'd)

Insulation ideas overturned by aluminum foil. By E. B. Svenson. American Builder. v. 53, no. 6. September, 1932. p. 31, 52. Tests show heat losses halved and quartered by use of novel material.

Migration of moisture in refrigeration insulation. Pt. I. By Hal W. McPherson. Refrigerating Engineering. v. 24, no. 4. October, 1932. p. 209-213.

## Irrigation.

Capacity of concrete-lined canals carrying muddy waters. Values of Kutter's  $n$ , based on experiments in lower Rio Grande Valley and experience with similar canals in other parts of the West. By Fred C. Scobey. 1932. 4p. Mimeographed. U.S. Bureau of Agricultural Engineering, Department of Agriculture.

Effect of irrigation on soil temperature. By G.E.P. Smith. California Citrograph. v. 17, no. 7. May, 1932. p. 277, 293.

Irrigation congress strives for action. Oregon Farmer. v. 55, no. 16. October 20, 1932. p. 2, 6. Extensive program seeking federal rehabilitation of Oregon projects to be vigorously pushed.

Reclaiming sewage for citrus grove irrigation is feasible. By J. E. Rockheld. California Citrograph. v. 17, no. 7. May, 1932. p. 274, 300-301. Report of preliminary investigation of possibilities of utilizing reclaimed sewage effluent.

Report of fourth biennial conference of Western Irrigation and Drainage Research Association. Tucson, Arizona. July 16, 17, 18. 1931. 36p. Multigraphed.

## Land.

Back to the land movement. By L. C. Gray. Rural America. v. 10, no. 8. October, 1932. p. 5-6. Radio talk. Easy to over-estimate possibilities of early relief by this means.

Organization and objectives of the National Land Use Planning Committee and the National Advisory and Legislative Committee on land use. 1932. 9p. Multigraphed.

## Miscellaneous.

Applications of statistical method in engineering and manufacturing. Mechanical Engineering. v. 54, no. 11. November, 1932. p. 778-780. Applications prior to 1929. Applications since 1929.

Etching of nails increases their holding power. Engineering News Record. v. 109, no. 18. November 3, 1932. p. 530. Desired pitted condition is obtained by subjecting nails to action of 2 per cent solution of ferric chloride in water in presence of mercuric chloride or salts of other metals.

First-order leveling in Michigan. By Howard S. Rappleye. 1932. 69p. U.S. Coast and Geodetic Survey. Special Publication no. 176. Descriptions and elevations of all bench marks in Michigan.

Forty-fourth annual report. June 30, 1932. Arkansas Agricultural Experiment Station. Bulletin no. 280. 1932. 67p. Agricultural Engineering, p. 34-36.



## Miscellaneous. (Cont'd)

High-speed diesel engines for automotive, aeronautical, marine, railroad and industrial use. By P.M. Heldt. Philadelphia, Pa., 1932. 312p.

Ingenious mechanical movements. Machinery. v.39, no.3. November, 1932. p. 179-181. Mechanism that returns lever to its starting position when machine is stopped, by F.R. Zimmerman. Intermittent movement of reciprocating slide, by J.E. Enno. Mechanical device stops press if punch breaks, by H.R. Hagerman.

New pile-bearing formula from model-pile tests. By L.C. Wilcoxon. Engineering News-Record. v. 109, no. 18. November 3, 1932. p. 524-526. Tests of model piles indicate bearing power characteristics of different shapes in sand and clay and suggest new pile-bearing formula.

Types, uses and testing of refractory cements. By W. Raymond Kerr. Chemical and Metallurgical Engineering. v. 39, no. 6. June, 1932. p. 331-332.

Venturi wind tunnel number 1. By Frederick Kurt Kirsten, in collaboration with Robert Christopher Davis. 1932. 26p. Pt. II. Design, construction and test of new tunnel propeller.

## Pipes and piping.

How to estimate and size pipes for domestic water demands. By Harold L. Alt. Domestic Engineering. v. 140, no.5. October, 1932. p. 36-39, 144-146. Safe methods of use; basic data for maximum probable flow; factor of usage variations; kind of pipe used; up-feed riser for hot or cold water; down-feed system.

Laboratory investigation on rough sewer pipe. By O.A. Olsen. Clay-Worker. v. 98, no. 4. October, 1932. p. 146-147.

Piping intelligence and economy. By J.A. McLennan. Southern Power Journal. v. 50, no. 11. November, 1932. p. 18-21. Design and installation of piping system is subject to many differences of opinion as to arrangement and detail. Ultimate operating economy and reliability, and low initial cost usually may be arrived at in number of different ways - but missed completely in many more. Unusual attention and thought should be applied to piping layout.

## Power.

Dobbin fades as gas power grows. By A.J. Schwantes. Northwest Farm Equipment Journal. v. 46, no. 10. October, 1930. p.30. Study of forms of power used on farms. Table gives power available on Minnesota farms, 1850-1930.

Illinois farm power studies. Farm Implement News. v. 53, no.31. October 27, 1932. p.15. Report of Department of Farm Organization and Management of Illinois college of agriculture.

## Pumps and pumping.

Cost of pumping for drainage in the upper Mississippi Valley. By John G. Sutton. 1932. 100p. U.S. Department of Agriculture. Technical bulletin no. 327.



## Pumps and pumping. (Cont'd)

Pumping costs: A few suggestions for keeping them down. By C.T. Baker.

Refrigeration. v. 32, no.4. October, 1932. p.20-21. Causes of high pumping costs; Facts needed in selecting pump; Where air lifts are used.

Pumps. By Chas. W. Cuno. Industrial and Engineering Chemistry. v.24, no.10. October, 1932. p. 1109-1115.

## Reclamation.

Partial list of articles in technical and other periodicals on the Bureau of Reclamation. Washington, Government Printing Office, 1932. 58p. Supersedes all previous lists.

Riverton project, present and future. By H.D. Constock. Reclamation Era. v.23, no.11. November, 1932. p. 186-187. Water supply ample; irrigation district organized; repayments to government; district to assume operation in 1935; projects development increases taxable wealth.

## Refrigeration.

Before the Fire Department of the City of New York, Board of hazardous trades. In the matter of the hearing relative to proposed classification and passage of rules and regulations in connection with the refrigerant Freon (Dichloro difluoro - Methane -- also known as F-12 and K-12) I. T. Williams and John Kenlon in rebuttal of Freon manufacturers' main brief and Freon manufacturers' rebuttal memorandum. To present the whole truth as to the hazards attaching to the use of Freon in refrigerating systems. 1932. 374p.

Direct expansion calorimeter. By J.L. Gibson. Refrigerating Engineering. v. 24, no. 4. October, 1932. p. 206-208. Apparatus to determine refrigerating capacities of small machines.

Milk cooling tank. Successful Farming. v. 30, no. 11. November, 1932. p.4. Insulation package on market consisting of layers of insulating material wrapped in duplex asphalt paper, made of two thicknesses of heavy kraft paper with odorless asphalt between diagram gives method of installation.

New refrigerant. Cold Storage. v. 35, no. 413. August 18, 1932. p. 173. Methyl formate described.

Principles of refrigeration. By William H. Motz. 3d edition. Chicago, Nickerson and Collins Co., 1932. 1019p. Comprehensive treatise on fundamental principles of operation of ice making and refrigerating machinery, properties and values of principal media used in modern refrigerating apparatus transmission of heat, functions and values of insulating materials; construction and operation of various parts of refrigerating apparatus and application of refrigeration to its varied uses.

Refrigeration is not new. By David L. Fiske. Refrigerating Engineering. v. 24, no. 4. October, 1932. p. 201-205. Ancient and primitive applications of "artificial" refrigeration.

Temperature changes in small food containers in fibreboard cases. By M.A. Joslyn and G.L. Marsh. Refrigerating Engineering. v. 24, no.4. October 1932. p. 214-224, 234, 236, 239.



## Refrigeration.

(Cont'd)

"Z" process in America. By M. T. Zarotschenzeff. Ice and Refrigeration. v. 83, no.2. August, 1932. p. 67-70. Principles of "Z" process outlined by illustrations and description. Effects of temperature and freezing time on water crystal formation and content in Mammalian muscles of frozen products.

## Research.

Engineering research at the colleges and universities of North America. By R.A. Seaton. Journal of Engineering Education. n.s.v.21, no.6. February, 1931. p.3-103.

Engineering research subjects suggested by industries. By H.H. Higbie. Journal of Engineering Education. n.s.v.21, no.6. February, 1931. p. 104-147.

Faith in research. By Arthur Koehler. Mechanical Engineering. v.54, no.11. November, 1932. p. 755-758. Prosperity rests on improvement in our standard of living; improvement rests on research yet private concerns, state and federal governments are cutting down on research.

## Rice.

Harvesting and drying rough rice in California. By Roy Bainer. 1932. 29p. California Agricultural Experiment Station. Bulletin no. 541. Study of the different methods of harvesting and drying rough rice and determining relation between milling quality and methods of harvesting and drying.

## Roofs.

Arch roof for home lowers cost of construction. Popular Mechanics Magazine. v. 58, no. 3. September, 1932. p. 385. No break at line where walls join roof. Roof and sidewall form continuous unit, only difference being in surface covering. Interior lines follow those of outside. In building home, framework of wood is erected first, members being built up of three layers, so straight sidepieces can be carried without break into curing roof. Layer of insulating material is then applied to outside, followed by weatherboarding or shingles. Method is being used for both one and two story houses. Four room house can be built complete by this method, with plumbing and lighting fixtures, for \$750.

## Septic tanks.

Location of septic tanks and disposal areas for rural jobs. By W.A. Hardenbergh. Domestic Engineering. v. 40, no. 4. September, 1932. p. 52-53. Examination of site for system; conditions to be observed; when fill is made.

## Sewage and sewage disposal.

Gas yield from sewage sludge. By William Rudolfs. 1932. 444-453p. Reprinted from Sewage Works Journal. v. 4, no. 3. May, 1932.

## Soils.

Experience with Goldbeck cells: Letter from A.T. Goldbeck. Engineering News Record. v. 109, no. 18. November 3, 1932. p. 535.



## Soils. (Cont'd)

Research on the Atterberg limits of soils. By Arthur Casagrande. Public Roads. v. 13, no. 8. October, 1932. p. 121-130, 136. Report of research on Atterberg's liquid and plastic limits of soils.

## Storage houses and cellars.

Vegetable storage. By A.G.B. Bouquet. 1932. 4p. Oregon State Agricultural College. Extension Service. Extension bulletin no. 452.

## Tires.

A-C offers air-tired tractors. Implement and Tractor Trade Journal. v.47, no.22. October 22, 1932. p. 16-17, 24. Model U and all-crop now available with new type of wheels, for which economy in fuel and greater speed are claimed

New tractor tire. Farm Journal. v. 56, no. 11. November, 1932. p. 15. New low pressure tire. Tire is large, but carries only 12 pounds air pressure. Makes tractor all-purpose machine. Makes possible some operations in high gear that have heretofore been possible only in second. Drop-center rim is available for use with these tires.

Rubber to work for agriculture. Implement and Tractor Trade Journal. v.47, no. 22. October 22, 1932. p. 14-15, 22. New tire equipment with its universal use brings to farm distinct advancement that will mean even more to tractor than balloon tire did to automobiles. Proved saving of time and gasoline, lower maintenance cost, and greatly increased comfort for operator.

## Tractors.

Baby farmall inaugurates the trade revival. Farm Implement News. v. 53, no.31 October 27, 1932. p. 14-15. Priced in \$500 range, it meets every normal power need on average 80 to 120 acre row-crop farm and taps small-farm market.

"Baby" tractor in production. Automotive Industries. v. 67, no. 15. October 8, 1932. p. 467. Produced by Italian firm in Milan. 4-cylinder engine of 2 5/8 in. bore by 4 in. stroke. Wheelbase, 54 in. and overall width, 46.5 in. Front wheels are 20 by 3.5 in. and rear wheels, 23 by 4.75 in. Engine develops 1-12 hp. at its normal speed of 1300 r.p.m. Farm tractor weighs 1870 lb. in running order and industrial type with solid rubber tires 2420 lb. Engine started on gasoline, and as soon as warmed up is switched over to kerosene.

How Minnesota farmers use their tractors. By A.J. Schwantes and J.B. Terrance. Farm Implement News. v. 53, no. 32. November 10, 1932. p. 24-25. Tables give per cent of tractors in different age groups; per cent of farms in various groups on which machinery designed especially for tractor use; drawbar operations for which tractors were used.

Smaller farmall is announced. Implement and Tractor Trade Journal v. 47, no.23 November 5, 1932. p. 14. Model F-12 extends application of power to much smaller farms.

## Walls.

Interior wall decoration. By F. N. Vanderwalker. Chicago. Frederick J. Drake and Co., 1932. 45lp. Practical working methods for plain and decorative finishes, new and standard treatments.



## Water pollution.

Stream pollution by irrigation residues. By C. S. Seefield. Industrial and Engineering Chemistry. v. 24, no. 11. November, 1932. p. 1223-1224. Conditions in Rio Grande Region. Conditions in Colorado Basin. Necessity for drainage in irrigated lands. Character and quantity of returned drainage water must be taken into account in any plans for utilization of water from lower part of river in arid or semi-arid regions.

## Water supply.

Forest growths curtail water supply: Editorial. Mechanical Engineering. v. 54, no. 11. November, 1932. p. 784-785. Complete deforestation over extensive areas produces drying of general climate which is probably due to fact that deforested land cakes and becomes impervious to water, and thus assists in rapid evaporation from its surface. Heavily forested land has apparently tendency to maintain balance between evaporation from leaves of trees and water held in layer of soil containing roots, ground retaining degree of moisture apparently sufficient to prevent ample amount being fed to streams.

## Welding.

Fusion welding requirements. By L.G. Haller. Power Plant Engineering. v. 36, no. 19. November, 1932. p. 753. Table gives detail of fusion welding requirements.

## Wood.

Moisture content of wood in dwellings. By Edward C. Peck. 1932. 24p. U.S. Department of Agriculture Circular no. 239.